

Govt Doc.
Can.
Ag.

Canada Agric. Dep.

STUDIES IN FRUIT DISEASES

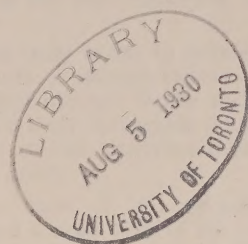
IV

PERENNIAL APPLE TREE
CANKER

BY

H. T. GÜSSOW

DOMINION BOTANIST



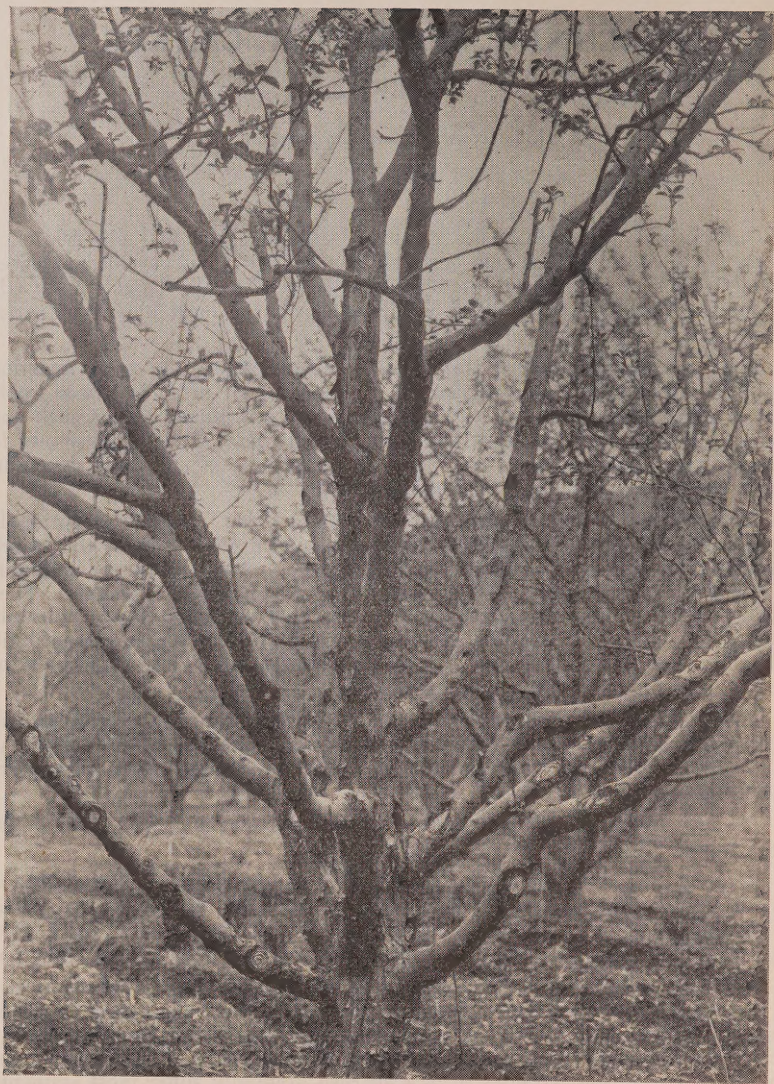
DIVISION OF BOTANY
DOMINION EXPERIMENTAL FARMS

DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE

PAMPHLET No. 116—NEW SERIES

Published by Direction of the Hon. W. R. Motherwell, Minister of Agriculture,
Ottawa, 1930





Perennial apple tree canker. General appearance of severely affected apple tree of the variety NEWTOWN.

In such varieties and districts the injury can be traced from the young growth very readily, viz: callus growths, i.e., the well known knobby spongy swellings due to aphids feeding on tender growth, as well as on water sprouts. These callus knobs are the first to show winter injury, being composed of very soft succulent tissues. Frequently they show longitudinal bursts or cracks in spring, which quickly cover over with new callus, and it is essentially on these tissues that aphids feed, and when old cankers are prevalent infections are bound to result. Likewise, where aphids are scarce these wounds will heal over satisfactorily and no injury results. Most of the cankers on young wood are attributable to woolly aphids carrying the infection. Furthermore, the process of healing of pruning wounds is due to callus formations completely covering same. But these same callus formations are favoured spots for the aphids and most cankers found on older wood, larger limbs and main trunks result from infection carried by aphids.

Growers who are not quite certain whether their trees show perennial canker are urgently requested to get into touch with their Agricultural District officers, or the Dominion Plant Pathological Laboratory at Summerland, or the Dominion Entomological Laboratory at Vernon.

In view of the recent very intensive tree to tree survey carried on by the Dominion and Provincial Departments of Agriculture, the growers in the Okanagan Horticultural District ought to be very familiar with this trouble and as control measures depend entirely upon concerted action, should induce and support each other in the wide and wholesale adoption of the means suggested for control. It cannot be too strongly emphasized that co-operative effort only will satisfactorily control this combination of circumstances, viz: winter injury, woolly aphids and perennial canker. If one man in a locality neglects his share of duty he will undo the work of all his neighbours, who have practised control measures. Let me here point out the success achieved in dealing with the fire blight situation. Perennial canker and woolly aphids can only be controlled by similar rigid co-ordination of effort and the strongest appeal possible is made to one and all of the growers. Where control measures are conscientiously practised success is bound to result. Failure, you are aware, can readily be traced to a neglectful individual. Attention may here be called to the fact that execution of control measures may be somewhat costly the first year in severely affected locations, but even in these, where thoroughly practised, cost of control gradually becomes cheaper and cheaper until eventually it is not more than an ordinary routine measure of watching for and promptly dealing with new outbreaks.

CONTROL MEASURES

Being thoroughly familiar with the type of canker and bearing in mind the very important factor of dispersal of the canker organisms, viz: the woolly aphids, thoroughly examine all your trees. If these are absolutely free in your particular district, the perennial canker danger is not imminent, but may become so at any time, once woolly aphids invade your orchard. Keeping down woolly aphids in districts where it is not yet abundant is a fundamental and very promising safeguard against perennial canker.

The Entomological research workers in the district assure us of a fair measure of success in controlling woolly aphids. This includes:

1st: Removal of all sucker growth around the base of each tree.



Close view, showing details of canker on young WAGNER tree.

2nd: Scraping off of all rough bark and cleaning out of larger cankers with the well known "mower blade scraper" in order to get rid of all hiding places of the aphid. Scraping (where possible scrapings should be burned) is best done when the tree is in dormant condition; once in full leaf this becomes a difficult operation because the cankers are not so readily seen.

3rd: All cankers should be painted or (where abundant) sprayed by means of a powerful sprayer with commercial castor oil; this oil remains sticky for months, should it become dry, apply again, i.e., perhaps one to three times a year, but frequently one thoroughly good application will suffice.

4th: As an additional precautionary measure, the Entomologists recommend where woolly aphid is present in a district, to add Blackleaf "40" not less than one pint to 100 gallons of any spray applied during the season. Where Blackleaf "40" is used as only spray add two pounds of freshly slaked lime and one pound of casein spreader to each 100 gallons of spray.

5th: After bark scraping and canker treatment has been completed, the Entomologists advise tanglefoot bands two to three inches wide, below the main limbs which will prevent aphids hibernating in refuse on the ground or on roots from climbing up in the spring. Personally I would suggest that this band be renewed in the fall to prevent migration to the roots, of aphids, and thus have them destroyed by the winter's frost. The winged form, I understand, is scarce, hence these precautionary methods if uniformly practised should do much towards controlling this noxious pest. Incidentally, this suggestion should prove of assistance in controlling the codling moth.

It seems that the above measures will effectively destroy the woolly aphid, and, incidentally, materially assist in controlling perennial canker, at least Plant Pathologists find it unnecessary to recommend special precautions, unless painting of cankers and pruning wounds with castor oil and burning of scrapings may be regarded as such.

There are a few points to be mentioned specially. In a good many cases infections may be noticed only on young wood, or the number of cankers may be very few and their situation on a tree favourable to suggest as a simple precaution the immediate removal of infected wood and the burning of all prunings. Naturally growers must use common sense where to adopt this method. Furthermore, we have seen many trees with very numerous cankers girdling large limbs or trunks. Such trees are better cut out at once and burned immediately to get rid of the source of infection. Sometimes it may pay to dehorn trees and graft them to better varieties, i.e., if the trunk is still sound. It must be left to the judgment of the growers how to deal with each individual case of this type, i.e., What is the most economical procedure?

In conclusion, we again emphasize: Winter injury is the primary cause. It is therefore a practice well to be followed, viz: to gradually re-plant or re-work your orchards until the last unprofitable variety has disappeared, and to study Circular 64 carefully, and with profit act upon the suggestion based upon years of experience of Provincial and Dominion horticulturists. Next in importance, but equally so, follows woolly aphid control and the great need for precaution against the spreading of woolly aphid into districts where it is not known at present. As an additional and general precaution: attempt to secure nursery stock from canker free areas and examine all your stock for cankers, rejecting any and all showing signs or suspicions of perennial canker. This is where your nurserymen are in a position to materially assist in successful control. I am quite sure that if these suggestions are conscientiously followed perennial canker will not prove the serious obstacle to successful fruit growing in the Okanagan, which it has proved to be in certain districts to the south of the border line.

